Essay

Physiology of the Foot

Respectfully submitted to the Faculty

Of the

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For

The Degree of Doctor of Medicine

By

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Although the very first appearance of the teeth are worthy of some consideration, I think it is hardly worth while to linger over it longer than is sufficient for a general explanation.

A fair idea however as regards the origin and embryo appearance of the teeth is requisite to comprehend their mode of perforation through the gums.

The first rudimentary exhibition we have of the teeth takes place between the first and second month of fetal life. quite a large depression

shows itself coated with mucous membrane on the external alveolus of the superior maxillary bone. It has been termed the "Dental Groove". It is conceded by most observers that the germ of the anterior molar tooth is organised first, exhibiting itself in the shape of a papilla on the bottom of the "Dental Groove"; following are the cuspid teeth which germinate and progress in the same way; between the third and fourth month of fetal life the incisors make

their appearance and finally the last deciduous molars. Succeeding the papillary, is the follicular, and last of all the saccular stage, which proceeds onwards from about the fifth month of fetal life. Minute processes then protrude from the dental surface of the "Dental Groove" on the papilla, then closing anteriorly and posteriorly, it is surrounded by a dilated follicle. At this period there commences a transformation of the

papillae to that of teeth.
Membranous projections
now complete the fasicular
stages, and passing from
the edges creates sacs
which are continuous
from fetal life onwards
to the time of their
eruption, which transpires
at different periods after
the expulsion of the
foetus. The bony formation
the teeth undergo, takes
place now. A bony deposition
is observed upon the
dental pulp, there being
previously no development
of cartilaginous material.

which gradually augments from time to time in the bulk from the bottom of the sac, the pulp coming in contact with the lamina of bone, it has a slight red appearance, other parts of its structure (in color) having no resemblance whatever. The bony material which has accumulated and become deposited on the pulp, begins from the internal accumulation in the sac, or from the surface of the sac;

the phosphate of lime constantly accumulating in bulk in the semi-fluid substance of the sac. When we have witnessed the formation of ivory in the sac, we also recognize upon the internal parietal stratum, villi which in appearance is similar to mucous membrane, also being vascular; with a delicate lamina of matter surmounting it, being granular, which might be deemed a kind

of epithelium investing the internal part of the first or real follicles. This above-mentioned surface is the matrice or cavity of that adamantine material we generally call enamel; to produce this material from the first or genuine pulp, or as you may say from its blood-vessels, is an impossibility, as the blood-vessels have been environed in the bony shell. As regards the first exhibition of

the enamel, it appears in small, delicate, crystaline, calcareous atoms.

It does not seem to be very dense or hard at the commencement, but as it progresses, it slowly increases in density and connects itself with the bone or ivory, and is divided from it by a delicate membrane, similar in appearance to the one which divided the bone from the pulp. The cementum makes a minute, delicate

coating which surrounds the fang, which is formed by the inferior or lower portion of the dental sac, which surrounds the part and cleaves to it.

The manner of formation of the single teeth, relies on the common rule of solidity in the body of the fetus, which commences on the median line, and advances to either side at the same time. In this manner the incisors are developed first, the last molars

finally, except the
cuspid teeth which
make their appearance
at a later period.
Furthermore teeth in the
inferior maxillary will
be more forward in
development, in correspondence
with the more forward
ossification of the inferior
maxillary in fetal life.
A gradual formation is
also exhibited in the
quantity of dental pulps;
in the twelfth week
there are sixteen, in the
sixteenth week of fetal
life, twenty. As the formation

of the teeth have be
perfected, dentine, cementum,
and the deposition of
enamel having taken
place, they protrude from
the jaw, perforate the
gums, and become
recognizable in the mouth,
in accordance with the
natural law of growth.
The fang of the tooth
increasing in size, the
coronal portion, is
projected against the
covering of the sac of
the alveolus, and the
gums. The delicate or
slight pressure made

thereby, creates absorption
of the bony covering,
after this has vanished,
of the gums. By the
protracted growth of
the fang of the tooth,
and by the progressional
development of the
maxillary bone, the
tooth is again projected
forward, until the
whole coronal surface
is completely denuded.

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